Energy Promotion and Development Division

Montana Department of Commerce

MONTANA'S ENERGY ECONOMY

EPDD Mission

- Foster creation of high quality jobs
- Increase tax base
- Increase Montana energy production

The Schweitzer Energy Policy

- Long term, sustainable, reliable, and affordable energy
- Economic growth
- National energy independence
- Clean energy technology
- Clean and healthful environment
- Maintain the Montana quality of life

A Diverse, Balanced Energy Portfolio

Traditional Energy Resources

- Coal
- Oil
- Natural Gas

Renewable Energy Resources

- Wind
- Geothermal
- Hydroelectric
- Bioenergy

Montana Energy Highlights

- #1 in U.S. coal deposits
- #1 in wind potential class 3 and above
- More than 15 locations for potential geothermal energy
- Oil production doubled in the last decade
- 16.5 million acres of crop land
- 19 million acres of non-reserved forest
- First completely merchant transmission line in the west

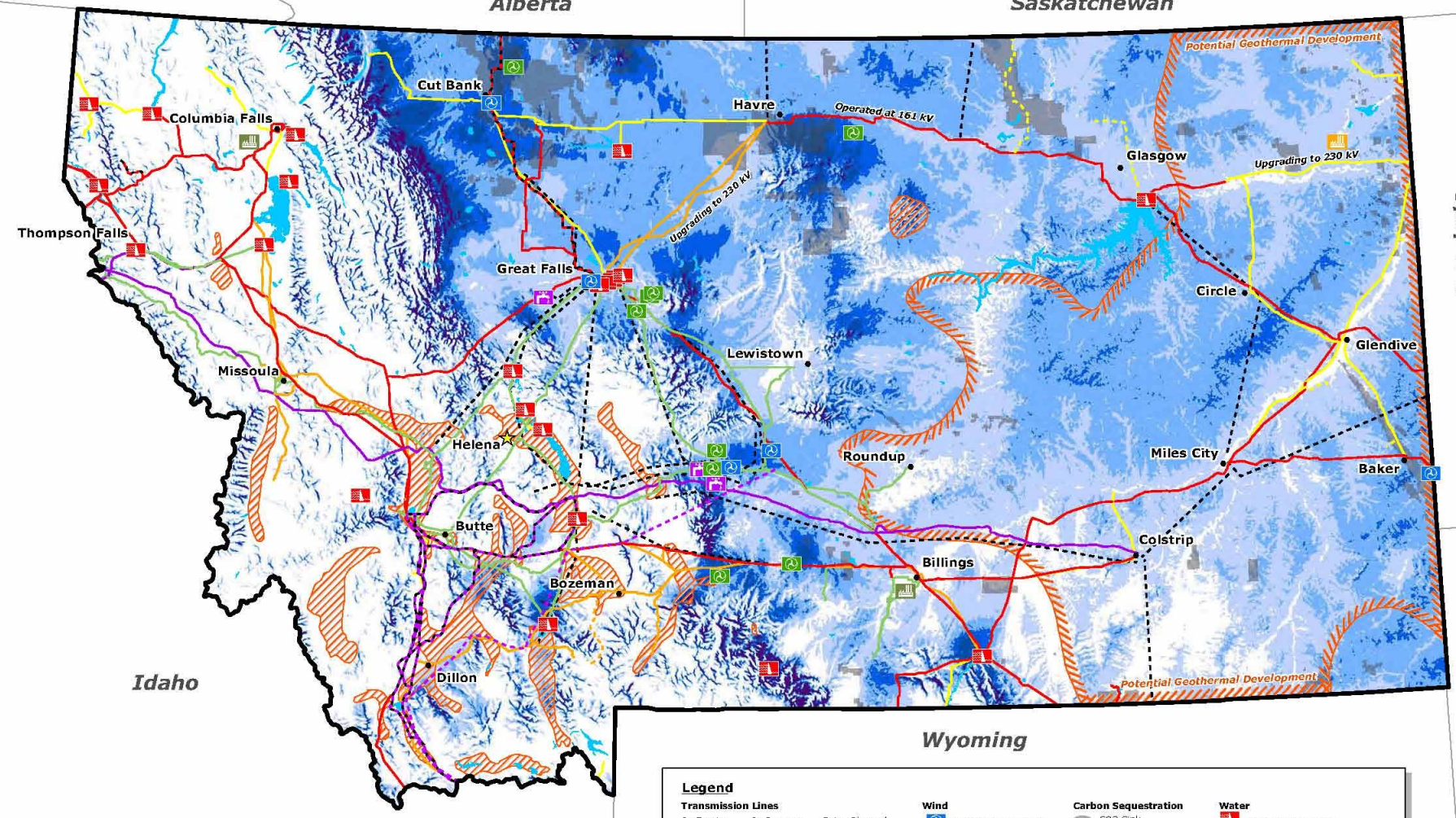
Montana Energy Policy Highlights

- RPS = 15% by 2015
- Oil production tax holiday
  - 18-month horizontal well
  - 12-month vertical well

- Clean and Green Tax Incentives
  - 50% tax reduction on Coal plants capturing CO_2 and CO_2 pipelines
  - 50% tax reduction on wind farms
  - 87% tax reduction on RE transmission
  - Renewable energy manufacturing
  - Energy R&D

MONTANA MEANS BUSINESS

Renewable Energy Resources



Legend

Transmission Lines

In Service	In Progress	Being Planned
500 kV	500 kV	500 kV (DC)
230 kV	230 kV	161 kV
161 kV		115 kV
115 kV		Conceptual
100 kV		

Wind
- Operating Wind Farms
- Planned Wind Farms

Wind Power Class
3 4 5 6 7
Watts/square meter @ 50m elevation

Carbon Sequestration
- CO2 Sink

Energy Recovery Projects
- Waste Heat
- Methane Collection

Geothermal
- Potential Development

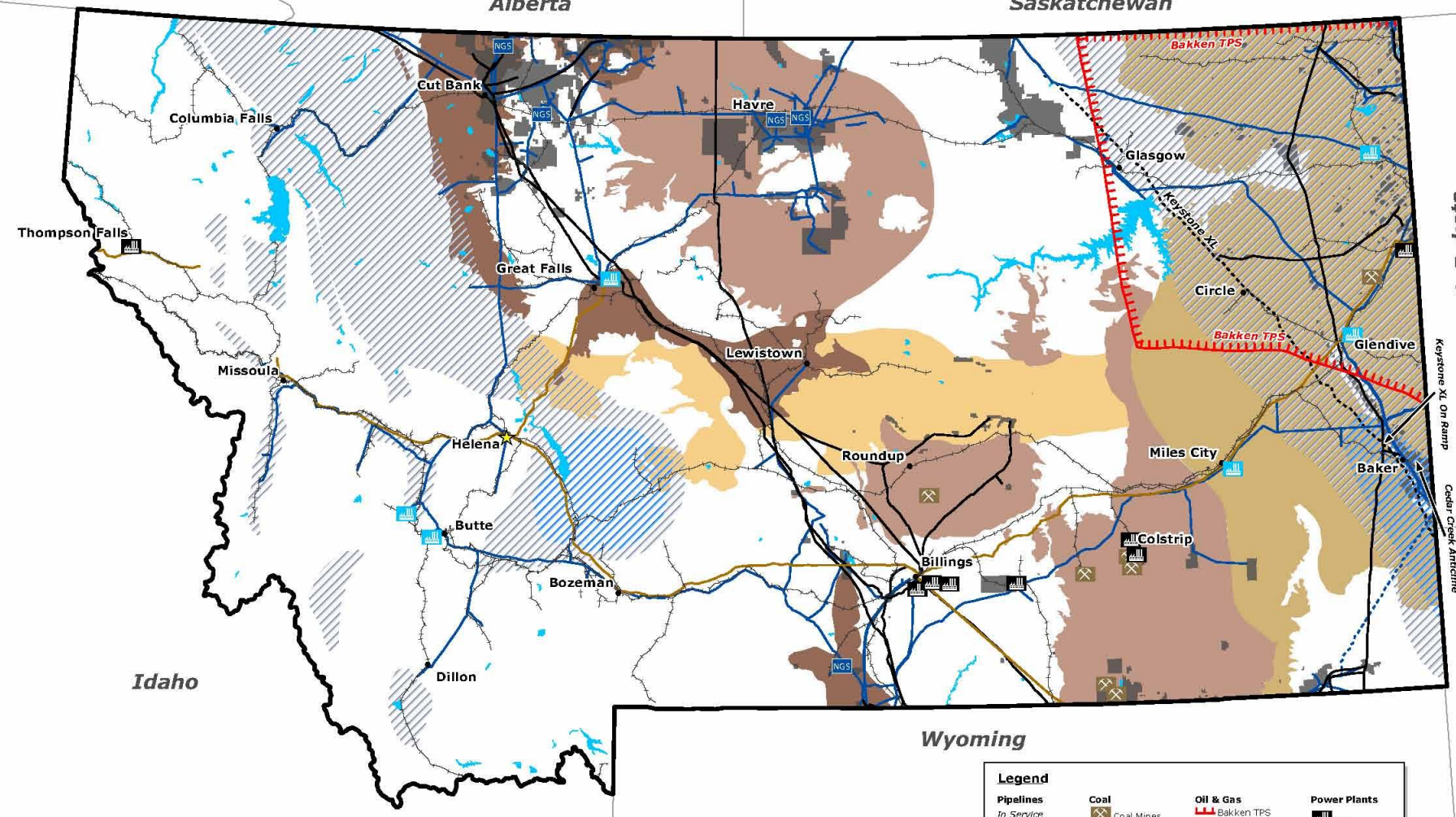
Water
- Hydroelectric Dams
- Planned Pumped Hydroelectric

Miles
0 5 10 20 30 40

Map Sources
Transmission Lines: Department of Environmental Quality
Wind Farms: Department of Environmental Quality
Wind Power Class: TrueWind Solutions (2002)
Potential Geothermal Development: Idaho National Engineering & Environmental Laboratory (2003)
CO2 Sinks: NatCarb (2008 Atlas - Oil & Gas Reservoirs)
Gas Storage Units: Board of Oil & Gas Conservation
Hydroelectric Dams: Department of Fish Wildlife and Parks
Pumped Hydroelectric: Department of Environmental Quality
Energy Recovery: Department of Environmental Quality

Map generated March 2011 by the Department of Environmental Quality in cooperation with the Department of Commerce. This document was printed at State expense. Information on the cost of the publication can be obtained by writing to the Department of Administration or to the Governor's Office of Economic Development.

Traditional Energy Resources



Legend

Pipelines
In Service
- Natural Gas
- Crude Oil
- Refined Oil

In Progress
- Natural Gas
- Crude Oil

Coal
- Coal Mines

Coal Shale Deposits
- Bituminous
- Sub-bituminous
- Lignite
- Oil-shale
- Railroads

Oil & Gas
- Bakken TPS
- Oil & Gas Fields
- Shale Gas Plays
- Shale Gas Basins
- NGS Natural Gas Storage Units

Power Plants
- Coal
- Natural Gas

Miles
0 5 10 20 30 40

Map Sources
Pipelines: Department of Environmental Quality
Coal Mines: Department of Environmental Quality
Coal Shale Deposits: Montana State University (1974)
Bakken TPS (Bakken-Lodgepole Total Petroleum System): United States Geological Survey (2008)
Oil & Gas Fields: Board of Oil & Gas Conservation
Shale Gas Plays & Basins: US Energy Information Administration
Coal Power Plants: Department of Environmental Quality
Natural Gas Power Plants: Department of Environmental Quality
Natural Gas Storage Units: Board of Oil & Gas Conservation

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Energy Industry Across Montana

- Coal
  - New mines
  - Export development
- Oil
  - Bakken boom
  - Keystone XL
- Transmission
  - MATL
  - Colstrip upgrades
  - MSTI
- Wind
  - Rim Rock
  - PTC Expiration?
- Bioenergy
  - Potential biofuels projects

MT is Coal Country

Montana's Coal Reserves

120 Billion Tons

28% Nation's Coal

8% World's Coal

Coal Mining in Montana

Existing Mines

- Decker Coal Co. at Decker, MT
- Spring Creek Coal Co. at Decker, MT
- Western Energy Co. at Colstrip, MT
- Signal Peak Energy at Roundup, MT
- Westmoreland Resources at Hardin, MT
- Total of approx 40mm tons/ yr

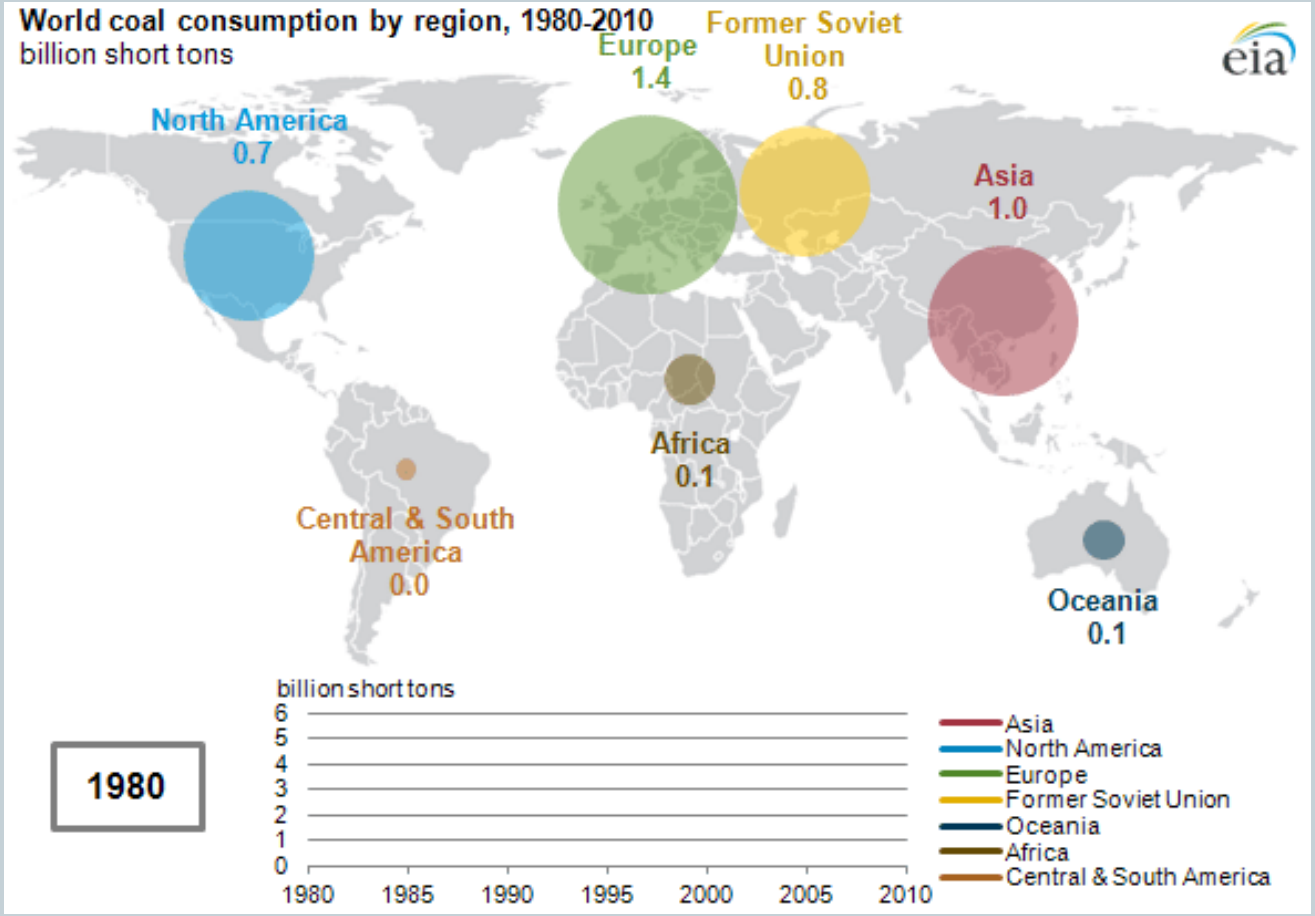
Otter Creek

- 1.4 billion tons of coal
- Tongue River Railroad
- Pacific ports
- Far east markets
  - Pacific Rim
  - India
- Mine Permit app this summer - 20 million ton / year operation

Issues Impacting MT Coal Development

- Asian Demand
  - Port development
- New Mines & Expanded Production
  - Otter Creek, Carpenter Creek, Bridger-Fromberg, Pace American
  - New Ownership at Decker
- Advanced Coal Projects
  - Big Sky CSP- Kevin Dome
  - PTAC - Belle Creek EOR Project

Increasing Asian Demand for Coal

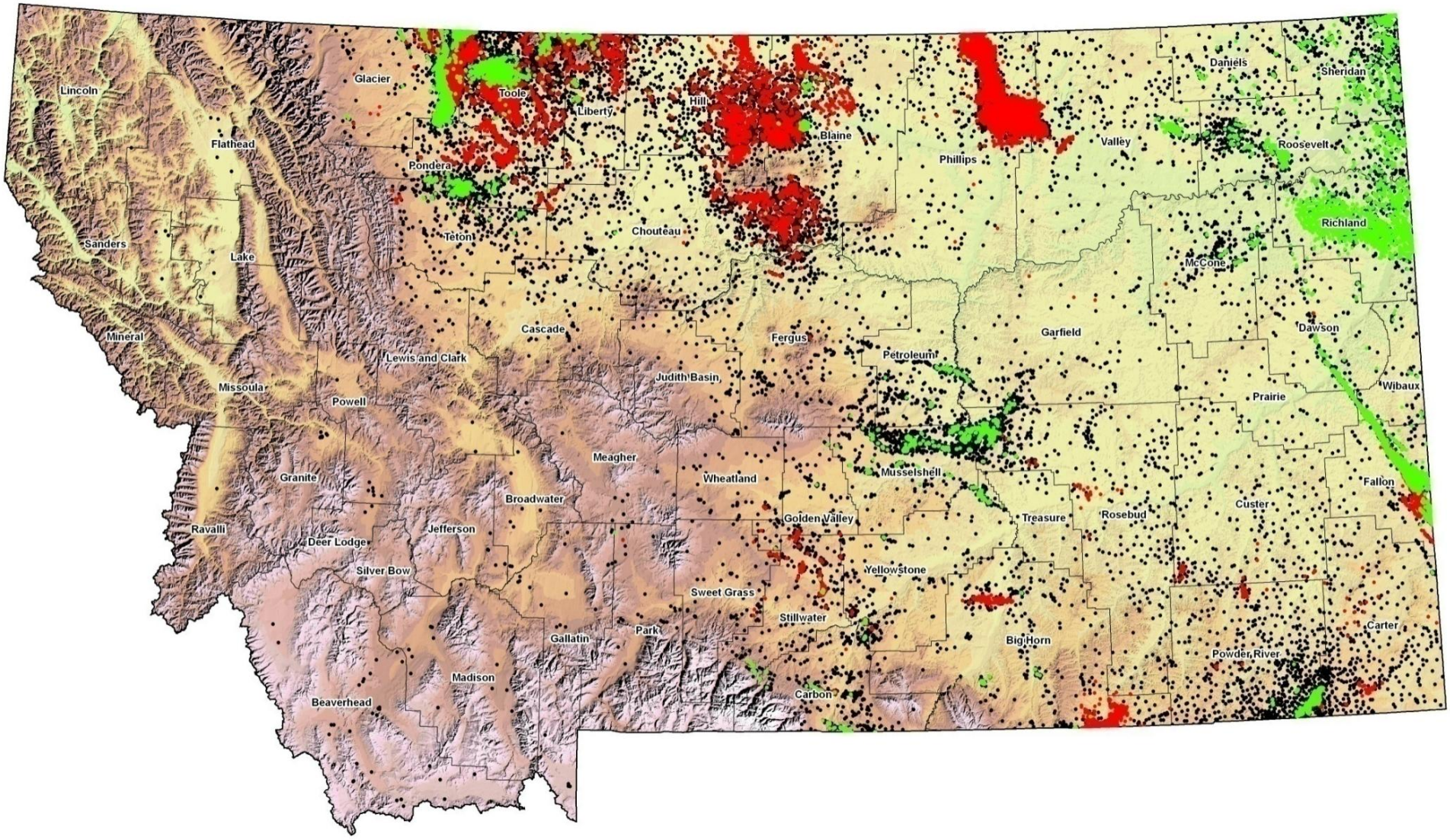


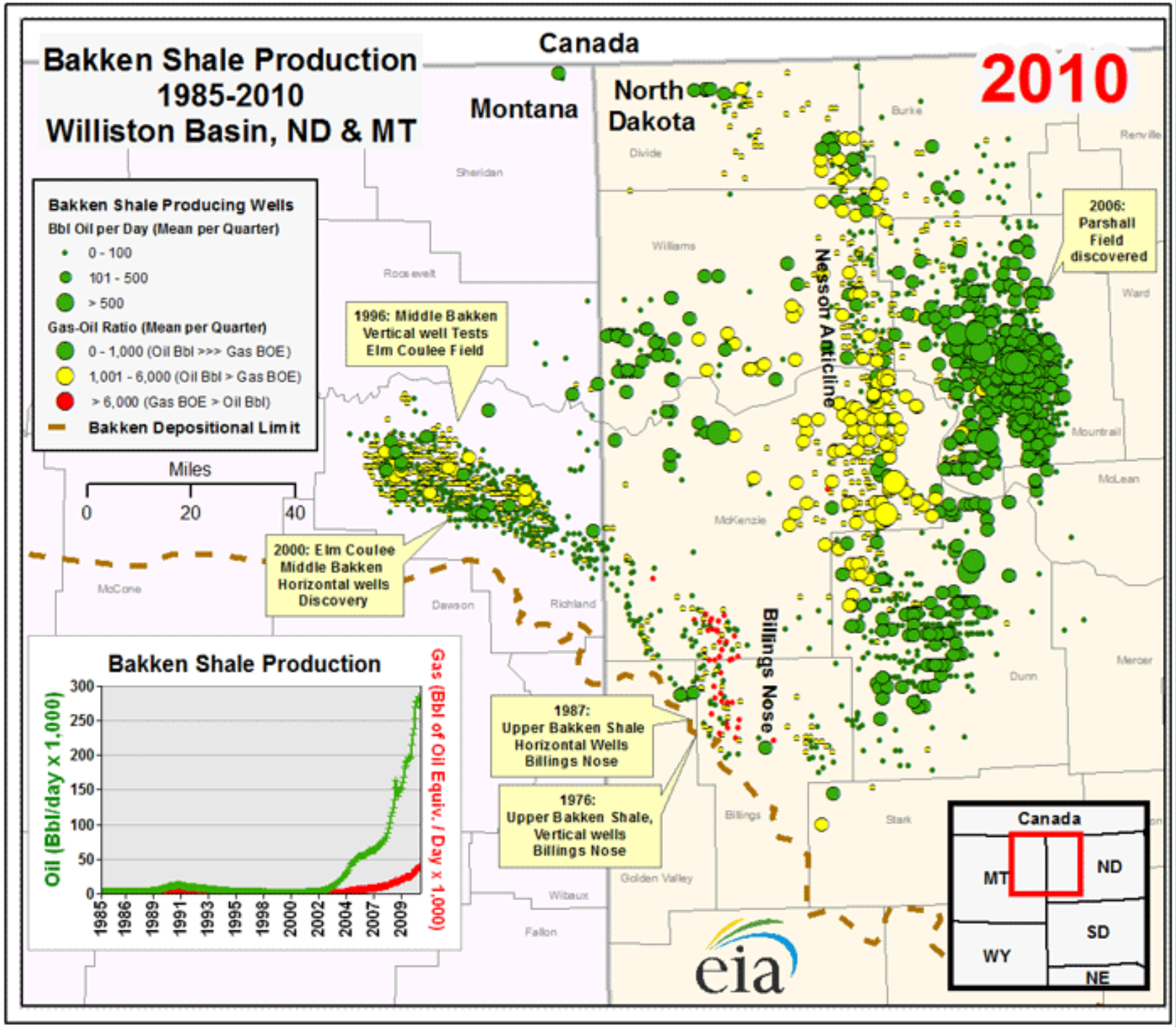
Source: U.S. Energy Information Administration, International Energy Statistics

Infrastructure Needed for Coal Exports

- Current coal export, through BC ports, at capacity
- Development of at least 2 new ports in Washington
  - Port of Longview- up to 60 mm tons/yr
  - Cherry Point Port- up to 48 mm tons/yr
- Tongue River Railroad

Montana Oil and Gas Production

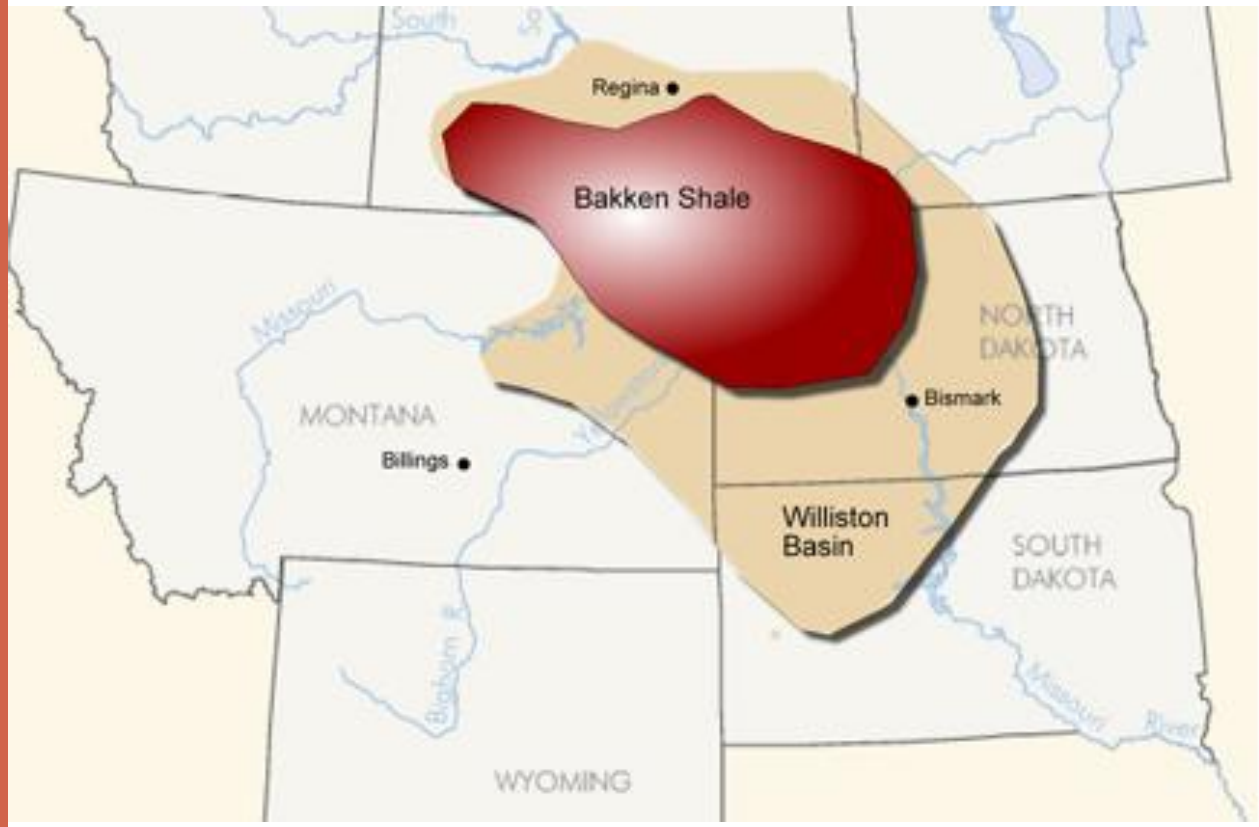



Bakken Shale Production
1985-2010
Williston Basin, ND & MT
Canada
Montana
North Dakota
2010
Bakken Shale Producing Wells
Bbl Oil per Day (Mean per Quarter)
0 - 100
101 - 500
> 500
Gas-Oil Ratio (Mean per Quarter)
0 - 1,000 (Oil Bbl >>> Gas BOE)
1,001 - 6,000 (Oil Bbl > Gas BOE)
> 6,000 (Gas BOE > Oil Bbl)
Bakken Depositional Limit
Miles
0
20
40
1996: Middle Bakken Vertical well Tests Elm Coulee Field
2000: Elm Coulee Middle Bakken Horizontal wells Discovery
2006: Parshall Field discovered
Nesson Anticline
Billings Nose
1987: Upper Bakken Shale Horizontal Wells Billings Nose
1976: Upper Bakken Shale, Vertical wells Billings Nose
Bakken Shale Production
Oil (Bbl/day x 1,000)
Gas (Bbl of Oil Equiv. / Day x 1,000)
300
250
200
150
100
50
0
1985
1986
1989
1991
1993
1995
1998
2000
2002
2004
2007
2009
Divide
Burke
Renville
Sheridan
Williams
Roosevelt
Ward
Mountrail
McLean
McKenzie
McCone
Dawson
Richland
Billings
Stark
Golden Valley
Wibaux
Fallon
Dunn
Mercer
Canada
MT
ND
SD
WY
NE
eia

Bakken Production for Domestic Supply

Bakken Formation

- 4.3 billion recoverable barrels (increasing)
- Sweet, light crude
- ~100% drilling success rate due to horizontal drilling and hydraulic fracturing
- MT wells over 3,000 barrels/day
- ND wells over 5,000 barrels/day



MT Oil and Gas

- 2010 value of MT oil production~ $1.8 billion
  - 12 active drilling rigs, up from 9 in the last year
- Industry agrees MT's business climate and tax structure not detrimental to increased drilling:
  - Brigham Energy: "They (Montana) have a good operating environment." (Billings Gazette May, 2011)
- 8th best overall tax climate for business (Tax Foundation 2012)

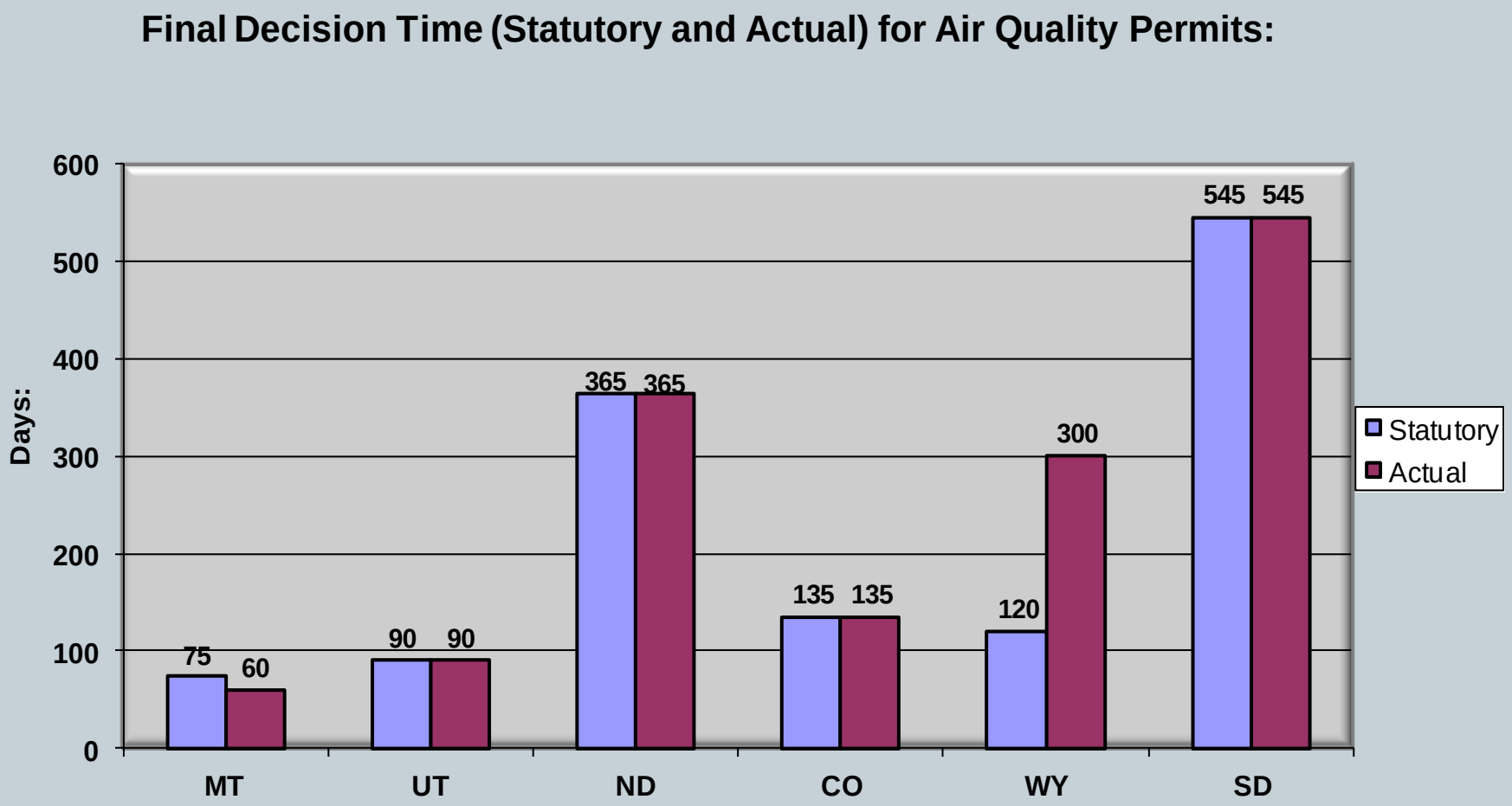
The Truth About MT Oil Taxes

Montana's tax rate on oil is lower than North Dakota's

	Montana	North Dakota	ADVANTAGE
Tax Rate	9.25%	11.5%	Montana
Tax Holiday	18 mo. (0.5%)	Only if oil <$50.07	Montana

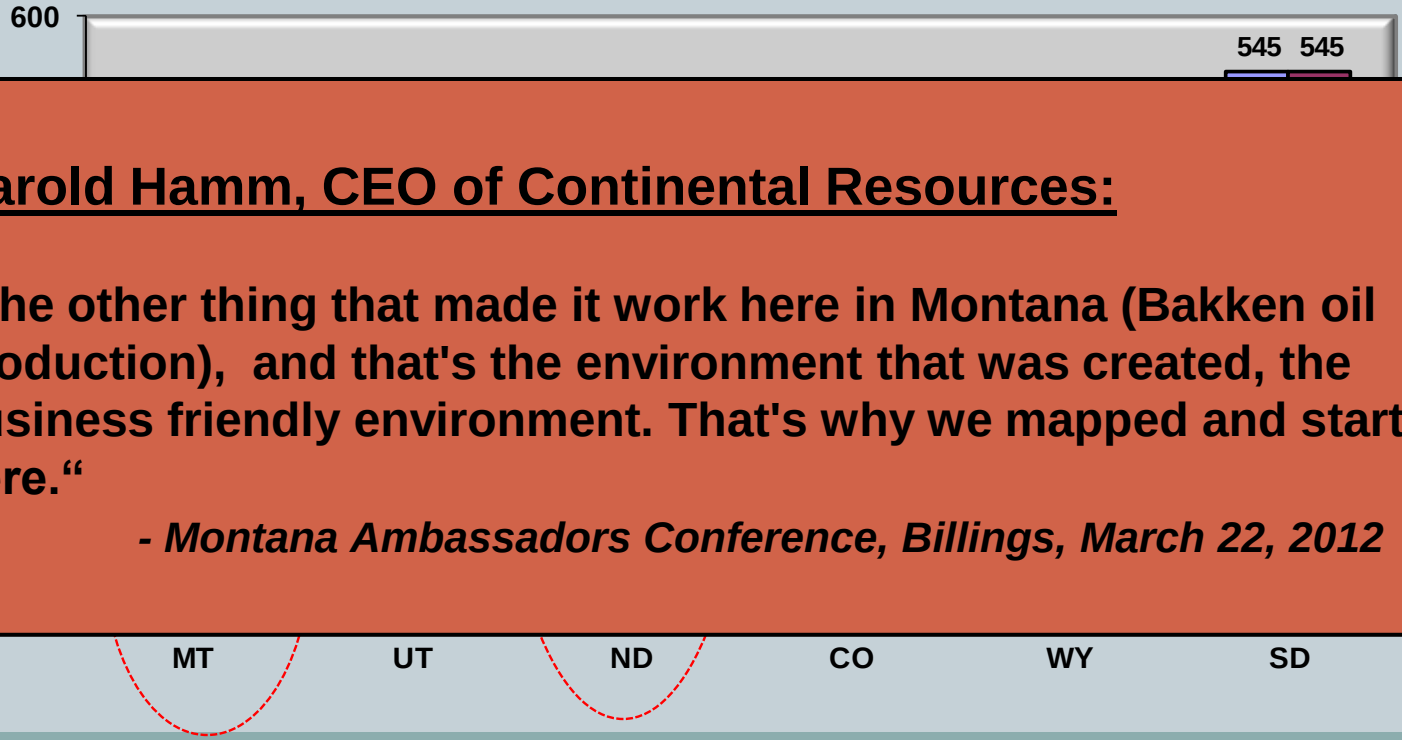
Montana's Business Tax Climate

Permitting Comparison



Permitting Comparison

Final Decision Time (Statutory and Actual) for Air Quality Permits:



Harold Hamm, CEO of Continental Resources:

"The other thing that made it work here in Montana (Bakken oil production), and that's the environment that was created, the business friendly environment. That's why we mapped and started here."

- Montana Ambassadors Conference, Billings, March 22, 2012

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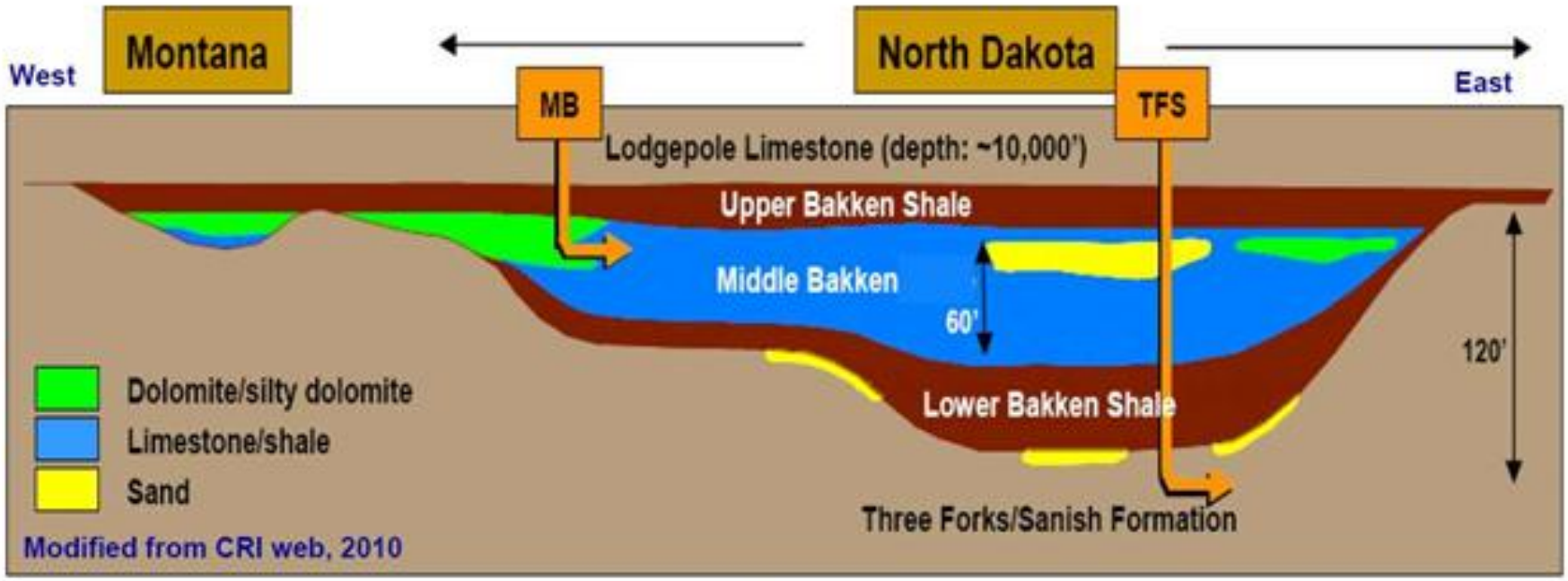
So why does ND have more activity than MT?

GEOLOGY

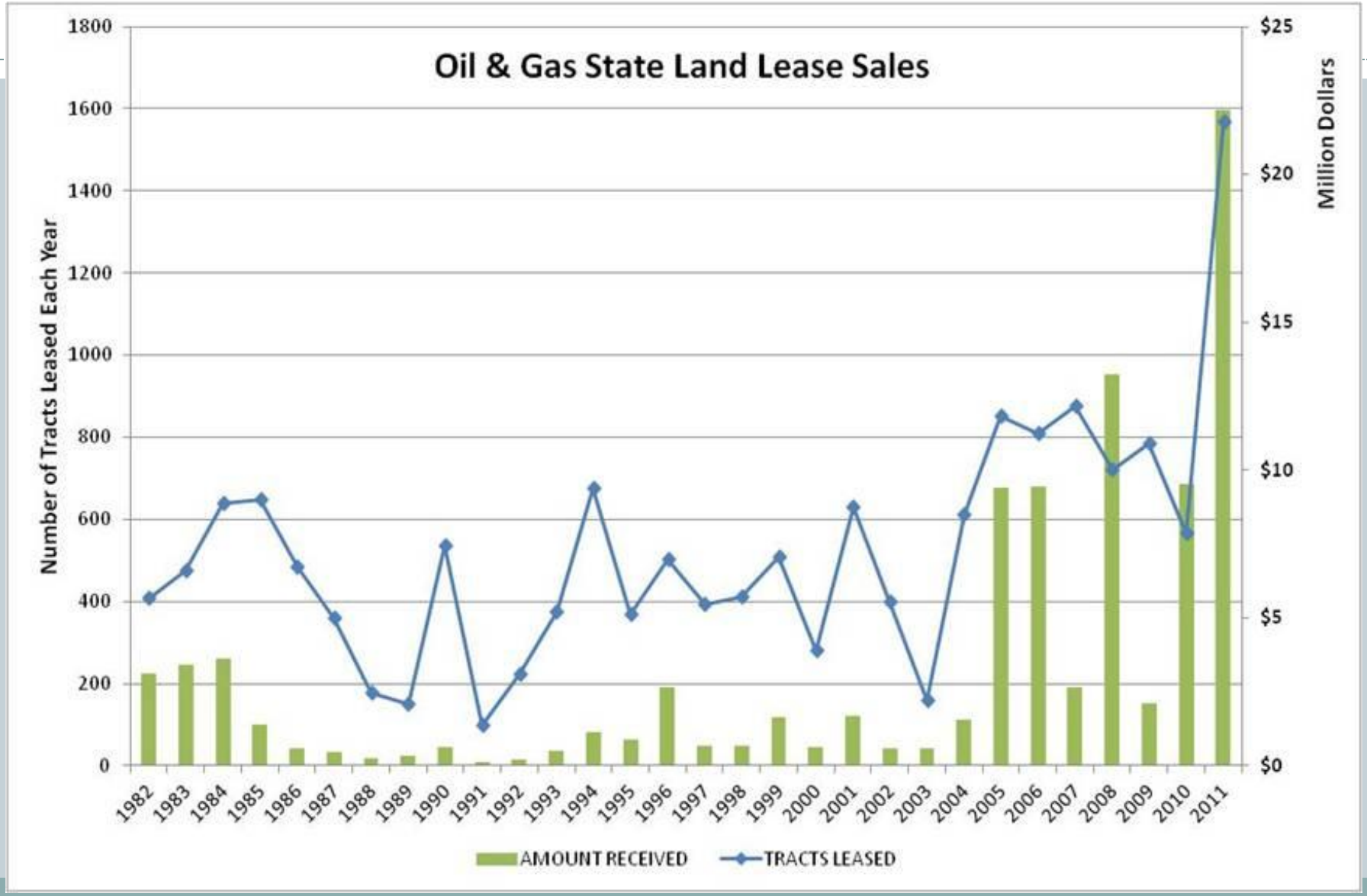


Recoverable Oil Estimates

3.0-4.3 Billion bbls-USGS. New estimate forthcoming

24 Billion bbls- Largest Bakken Operator (Hamm, Continental Resources)

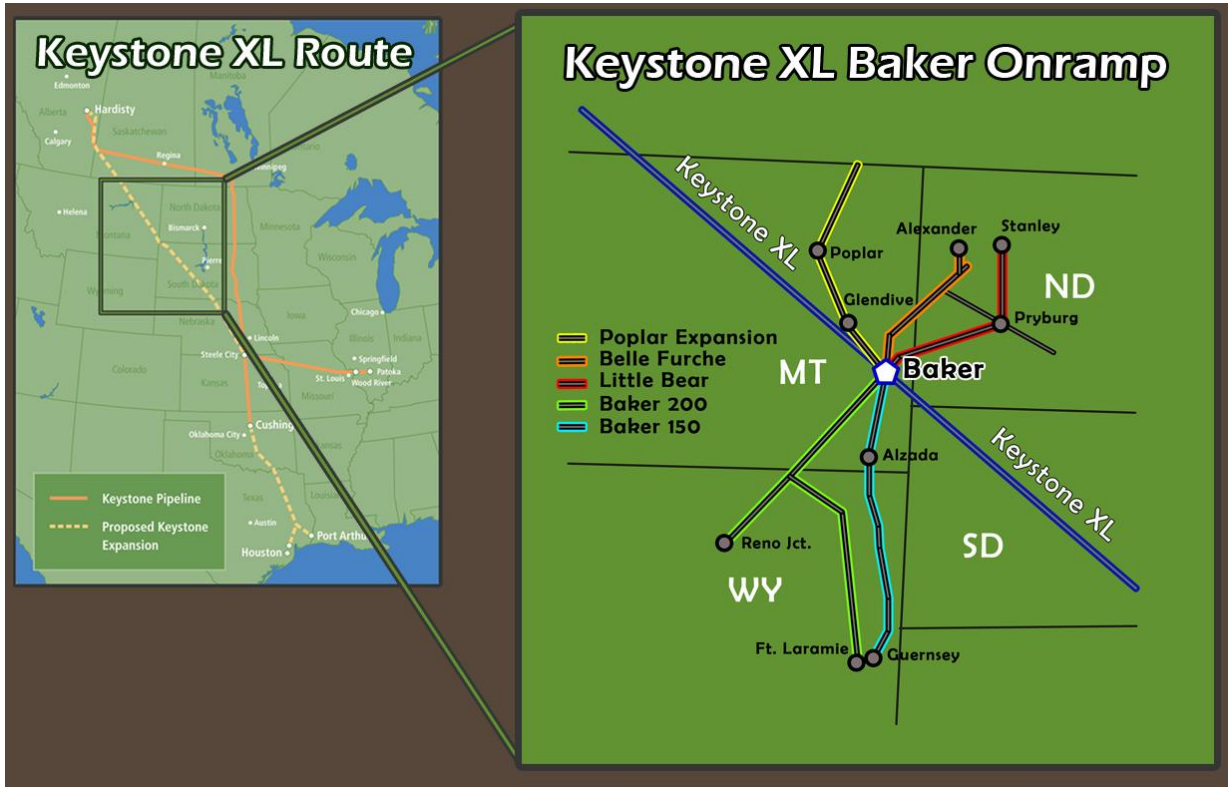
O&G Leases


Oil & Gas State Land Lease Sales
Number of Tracts Leased Each Year
Million Dollars
1800
1600
1400
1200
1000
800
600
400
200
0
$25
$20
$15
$10
$5
$0
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
AMOUNT RECEIVED
TRACTS LEASED

Value added through Keystone XL

- Approval delayed but project still very much alive
- Baker Onramp will provide 100,000 bpd of Bakken crude oil capacity
- Plan to resubmit application
- Alternative Nebraska completed by fall 2012

The Keystone XL Pipeline and Baker Onramp



TransCanada Applies for Keystone XL Presidential Permit

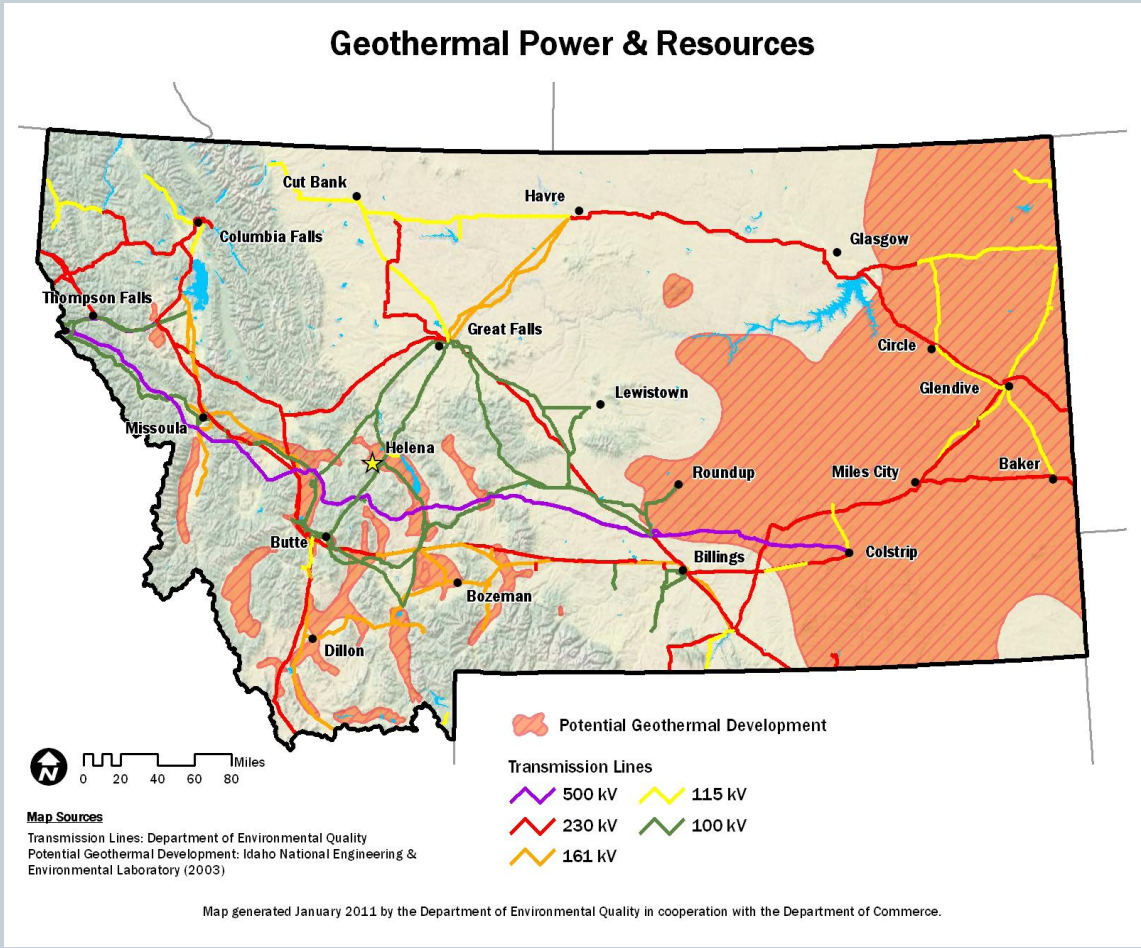
CALGARY, ALBERTA-- MAY 4, 2012) - TRANSCANADA CORPORATION ANNOUNCED TODAY IT HAS SUBMITTED A PRESIDENTIAL PERMIT APPLICATION TO THE U.S. DEPARTMENT OF STATE (DOS) FOR THE KEYSTONE XL PIPELINE. TRANSCANADA WILL SUPPLEMENT THAT APPLICATION WITH AN ALTERNATIVE ROUTE IN NEBRASKA AS SOON AS THAT ROUTE IS SELECTED.

Opportunities between the Oil, Gas and Geothermal Industries

Montana has massive geothermal energy underneath its surface.

The Bureau of Mines and Geology has conducted a report on Montana's geothermal resources largely using data from oil and gas drilling.

Opportunities exist for these energy industries to combine their efforts to further development in Montana.

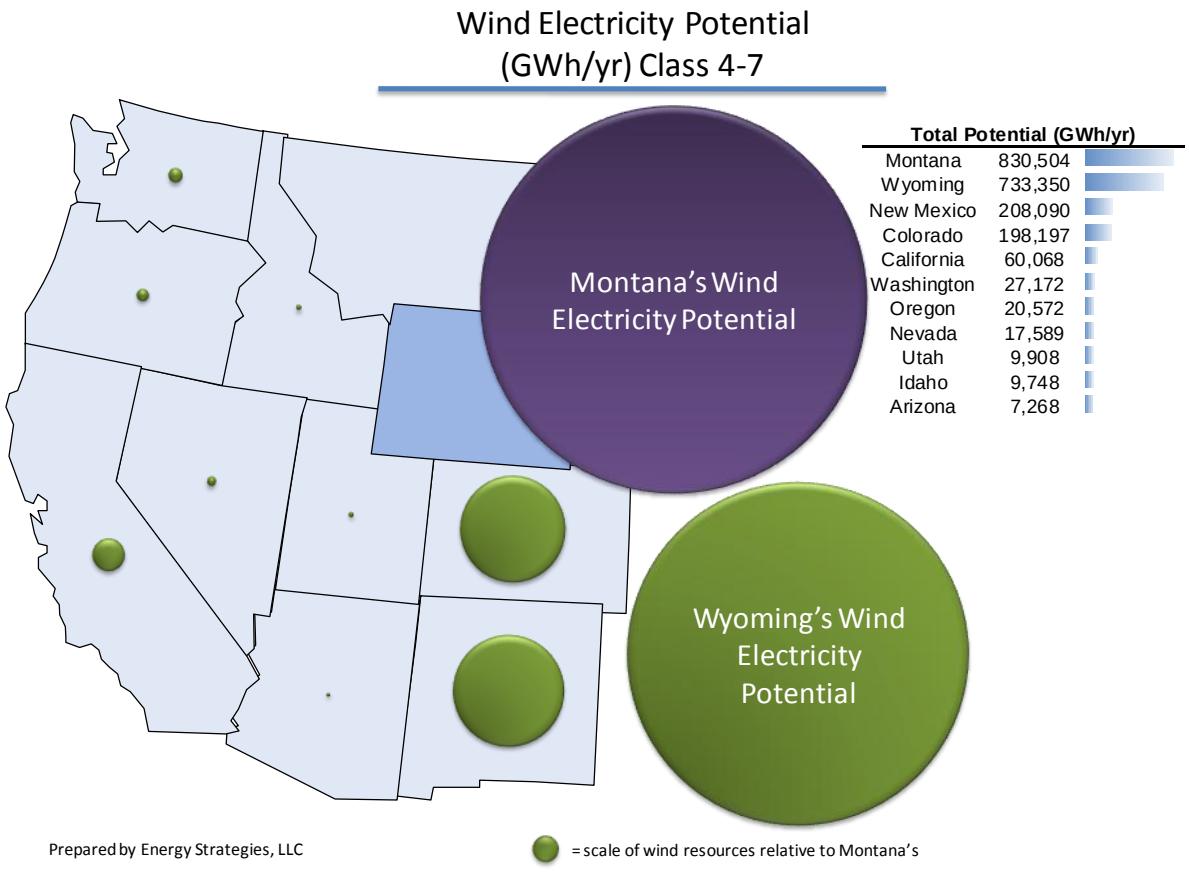


Energy Supply

Adversely, renewable energy supply is not located near the region's large demand near the pacific coast and southwest.

Montana's renewable resource supply must be able to reach these markets through an intelligent transmission system.

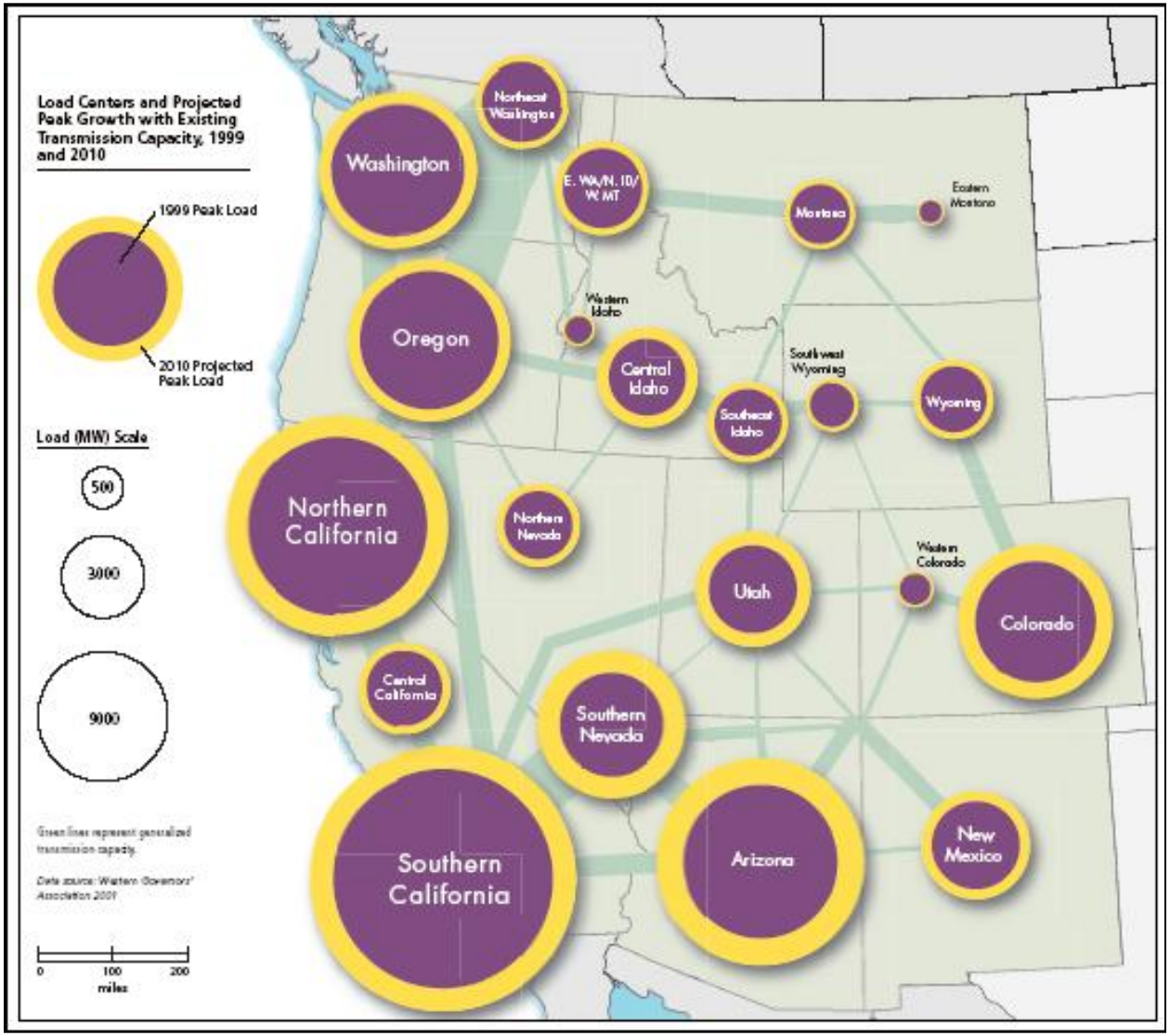
Western States Wind Energy Potential



Montana's Export Markets

Regional market demand in the west is increasing. Renewable Energy Standards have also placed an increased demand on renewable energy.

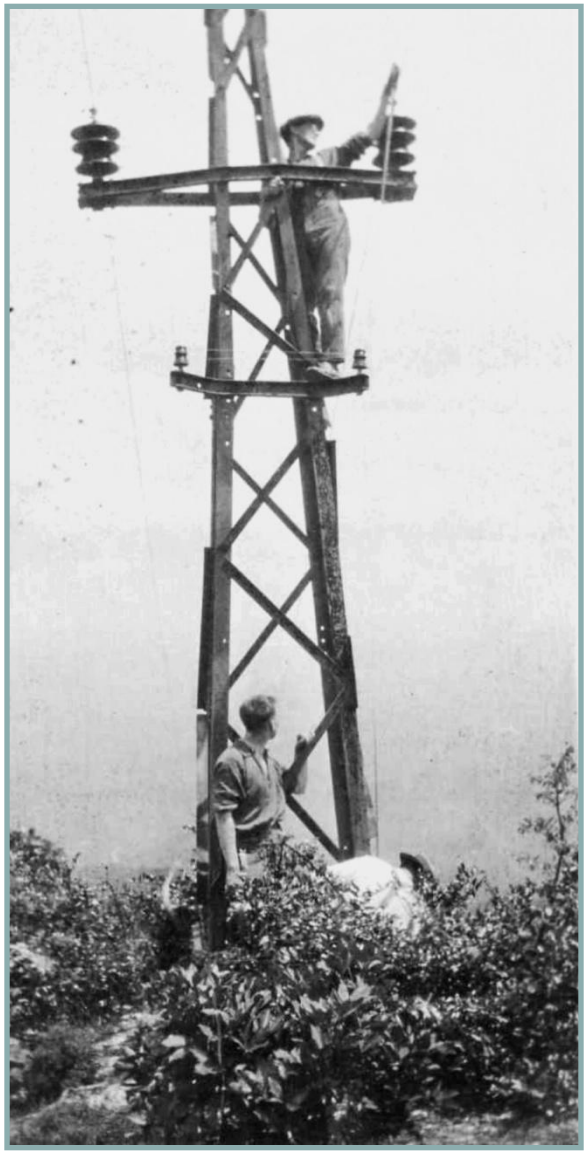
Montana currently exports ~60% of its electrical generation; increased export is hindered by limited transmission capacity.



Transmission is Key

National energy security and stability requires a transmission system that is able to move energy supply to energy demand.

Creation of a transcontinental grid will enhance energy development from all sectors throughout the nation.



Montana Transmission for America

High-capacity, high-voltage interstate lines:

Montana Alberta Tie Line

Mountain States Transmission Intertie

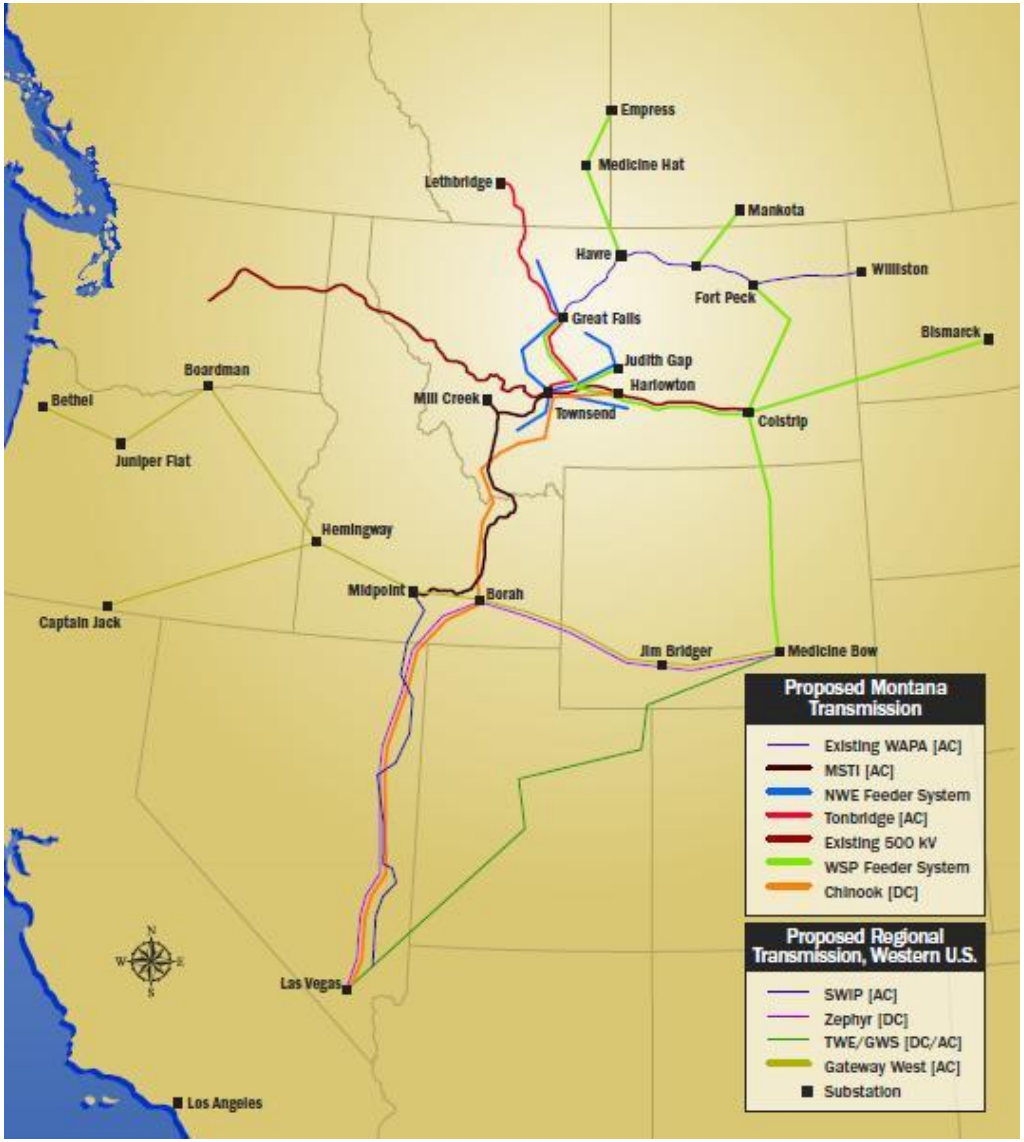
Chinook

Wind Spirit

Wind Collector Systems:

NorthWestern Energy

Wind Spirit



MT's Business Development Environment

- 8th best overall tax climate for business (Tax Foundation, 2012)
- MT's combined state and local tax burden of 8.7% ranks well below the national average of 9.8% (Tax Foundation, 2009)
- 4th most educated workforce (Business Facilities, 2009)
- 5th best cost of labor (Business Facilities, 2011)
- Workers comp costs reduced by 20% in 2011

Conclusion

- Montana has vast Energy Resources
  - Renewable and Traditional
- Transmission capacity is essential to continued generation development
  - Development of our energy resources hinders upon our ability to deliver a product to larger markets
  - A stable energy grid requires an integrated transmission system
- Energy Development is Good Economics
  - Billions of dollars in capital investment, millions of dollars in state and local revenues, and thousands of jobs are being generated due to new energy development in Montana.
  - Innovation within this industry will come from supporting our universities and R&D programs.

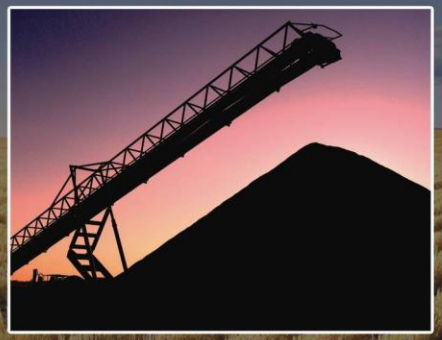
Oil- Bioenergy - Coal

Montana Means Energy

Geothermal - Gas - Wind

120 billion tons of Coal
#1 in Wind class 3 and above
35.5 million acres of Bioenergy potential
Home to the Bakken Oil and Gas formation
Vast Geothermal and Solar Potential






Contact the Energy Promotion and Development Division at:
commerce.mt.gov/energy - 406.841.2030
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